AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (Previously Presented) An optical functional device comprising:

a periodic structure with a first refractive index portion and a plurality of second refractive index portions,

wherein the second refractive index portions recur in a periodic pattern relative to the first refractive index portion, and

wherein each recurrence of the second refractive index portion has a variable refractive index, and wherein, when the second refractive index portions are in a first refractive state, the optical functional device passes light having a first characteristic and blocks light having a second characteristic, and, when the second refractive index portions are in a second refractive state, the optical functional device passes light having the first characteristic and redirects light having the second characteristic.

2. (Previously Presented) An optical functional device as claimed in claim 1,

wherein the second refractive index portions include a medium having an electro-optical effect, and by electrically controlling the medium from outside, it is possible to vary the periodic structure.

3. (Original) An optical functional device as claimed in claim 2,

wherein the medium is liquid crystal.

4. (Previously Presented) An optical functional device as claimed in claim 1,

wherein the refractive index of each recurrence of the second refractive index portion is varied by acoustic waves propagating in one or more media, and the refractive

index of each recurrence of the second refractive index portion is controlled by electrically controlling the frequency of the acoustic waves from outside.

5. (Original) An optical functional device as claimed in claim 1, wherein the periodical structure is two-dimensional.

6. (Currently Amended) An optical integrated device comprising:

a waveguide portion for guiding light; and

a periodic structure portion to which light is directed by the waveguide portion, and which has a periodic structure with a first refractive index portion and a plurality of second refractive index portions,

wherein the second refractive index portions recur in a periodic pattern relative to the first refractive index portion, and

wherein each recurrence of the second refractive index portion has a variable refractive index, and wherein, when the second refractive index portions are in a first refractive state, the optical functional device passes light having a first characteristic and blocks light having a second characteristic, and, when the second refractive index portions are in a second refractive state, the optical functional device passes light ~~without redirection~~ having the first characteristic and redirects light having [[a]] the second characteristic.

7. (Original) An optical integrated device as claimed in claim 6, further comprising:

another waveguide portion for guiding light emitted from the periodic structure portion.

8. (Previously Presented) An optical integrated device as claimed in claim 6, further comprising:

a voltage applying portion for applying a voltage to the periodic structure portion for varying the variable refractive index.

9. (Currently Amended) An optical integrated device comprising:

a periodic structure portion which has a periodic structure with a first refractive index portion and a plurality of second refractive index portions,

wherein the second refractive index portions recur in a periodic pattern relative to the first refractive index portion, and

wherein each recurrence of the second refractive index portion has a variable refractive index, and wherein, when the second refractive index portions are in a first refractive state, the optical functional device passes light having a first characteristic and blocks light having a second characteristic, and, when the second refractive index portions are in a second refractive state, the optical functional device passes light ~~without redirection~~ having the first characteristic and redirects light having [[a]] the second characteristic; and

a waveguide portion for guiding light.

10. (Previously Presented) An optical integrated device as claimed in claim 9, further comprising:

a voltage applying portion which applies a voltage to the periodic structure portion for varying the variable refractive index.

11. (Currently Amended) An optical integrated device comprising:

a light source portion that can vary wavelengths of emitted light; and

a periodic structure portion which has a periodic structure with a first refractive index portion and a plurality of second refractive index portions,

wherein the second refractive index portions recur in a periodic pattern relative to the first refractive index portion, and

wherein each recurrence of the second refractive index portion has a variable refractive index, and wherein, when the second refractive index portions are in a first refractive state, the optical functional device passes light having a first characteristic and blocks light having a second characteristic, and, when the second refractive index portions are in a second refractive state, the optical functional device passes light ~~without~~

~~redirection~~ having the first characteristic and redirects light having [[a]] the second characteristic.

12. (Original) An optical integrated device as claimed in claim 11, further comprising:

a waveguide portion for directing light to the periodic structure portion.

13. (Previously Presented) An optical integrated device as claimed in claim 12, further comprising:

a second waveguide portion for guiding light exiting from the periodic structure portion.

14. (Previously Presented) An optical integrated device as claimed in claim 13, further comprising:

a third waveguide portion for guiding light exiting from the periodic structure portion.

15. (Previously Presented) An optical integrated device as claimed in claim 12, further comprising:

a voltage applying portion that applies a voltage to the periodic structure portion for varying the variable refractive index.

16. (Previously Presented) An optical functional device comprising:

a periodic structure having a first refractive index portion and a plurality of second refractive index portions, the second refractive index portions recurring in a periodic pattern with respect to the first refractive index portion; and

a controller for varying the refractive index of the plurality of second refractive index portions, and wherein, when the second refractive index portions are in a first refractive state, the optical functional device passes light having a first characteristic and blocks light having a second characteristic, and, when the second refractive index portions

are in a second refractive state, the optical functional device passes light having the first characteristic and redirects light having the second characteristic.

17. (Previously Presented) An optical functional device as claimed in claim 16,

wherein the plurality of second refractive index portions include a medium having an electro-optical effect, and wherein the controller electrically controls the medium to vary the refractive index of the plurality of second refractive index portions.

18. (Previously Presented) An optical functional device as claimed in claim 17,

wherein the medium is liquid crystal.

19. (Previously Presented) An optical functional device as claimed in claim 16,

wherein the controller varies the refractive index of the plurality of second refractive index portions by propagating waves in one or more media, and wherein the controller controls a frequency of the waves.

20. (Previously Presented) An optical functional device as claimed in claim 16,

wherein the periodic structure is two-dimensional.

21. (Previously Presented) An optical functional device as claimed in claim 1 wherein the first characteristic is a first polarity state and the second characteristic is a second polarity state.

22. (Previously Presented) An optical functional device as claimed in claim 1 wherein the first characteristic is a first wavelength and the second characteristic is a second wavelength.

23. (Previously Presented) An optical integrated device as claimed in claim 6 wherein the first characteristic is a first polarity state and the second characteristic is a second polarity state.

24. (Previously Presented) An optical integrated device as claimed in claim 6 wherein the first characteristic is a first wavelength and the second characteristic is a second wavelength.

25. (Previously Presented) An optical integrated device as claimed in claim 9 wherein the first characteristic is a first polarity state and the second characteristic is a second polarity state.

26. (Previously Presented) An optical integrated device as claimed in claim 9 wherein the first characteristic is a first wavelength and the second characteristic is a second wavelength.

27. (Previously Presented) An optical integrated device as claimed in claim 11 wherein the first characteristic is a first polarity state and the second characteristic is a second polarity state.

28. (Previously Presented) An optical integrated device as claimed in claim 11 wherein the first characteristic is a first wavelength and the second characteristic is a second wavelength.

29. (Previously Presented) An optical functional device as claimed in claim 16 wherein the first characteristic is a first polarity state and the second characteristic is a second polarity state.

30. (Previously Presented) An optical functional device as claimed in claim 16 wherein the first characteristic is a first wavelength and the second characteristic is a second wavelength.